

RESIDENTIAL EXTERIOR



LIGHTING UPGRADE GUIDE

and Group Purchasing Program

CITY OF BERKELEY
May 1996

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Acknowledgments

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Residential Exterior Lighting Upgrade Guide

City of Berkeley

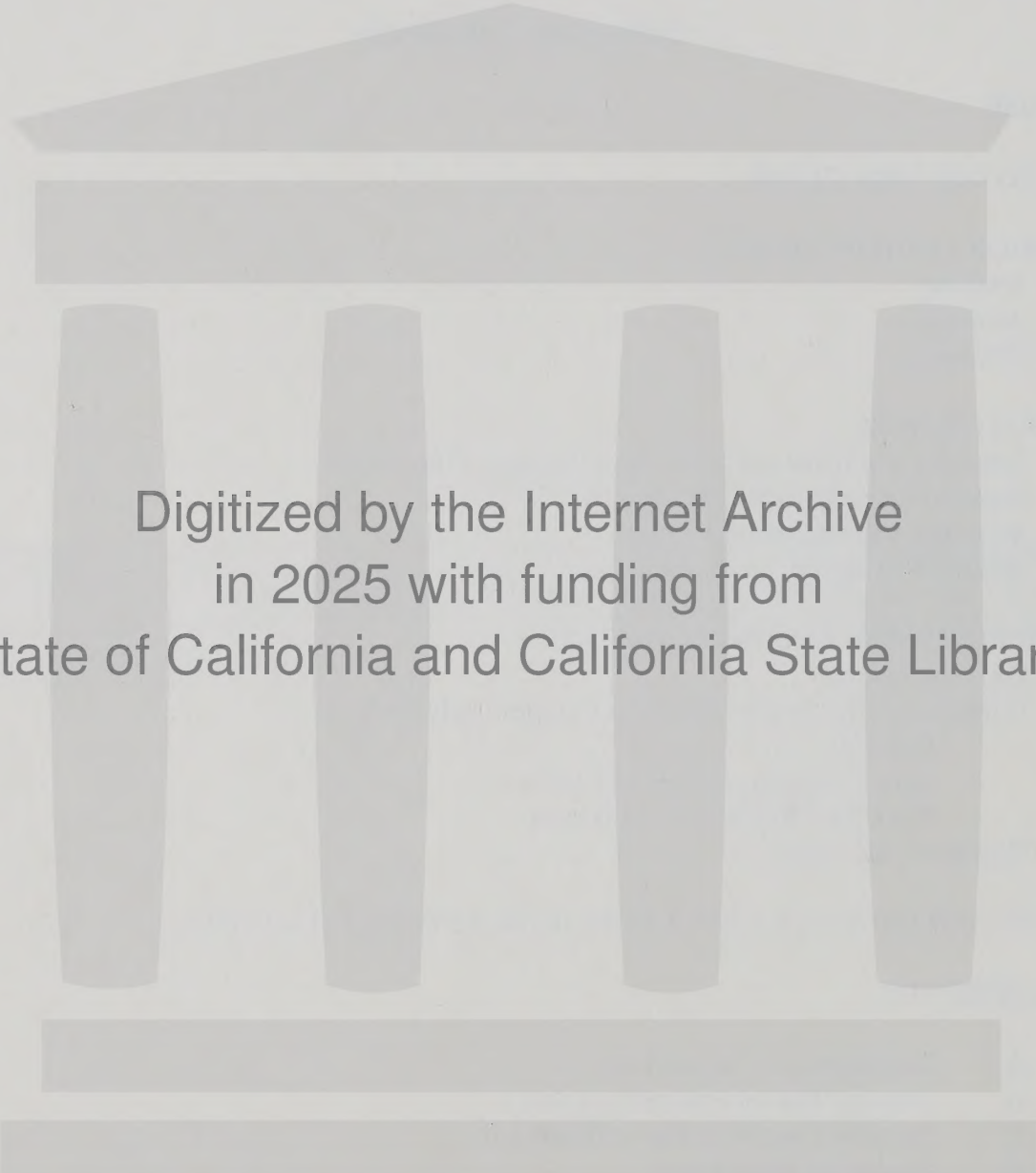
Department of Housing, Energy Office

Office of Special Community Services, Neighborhood Services Division

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CITY OF BERKELEY

RESIDENTIAL EXTERIOR LIGHTING UPGRADE GUIDE

PURPOSE

The purpose of this guide is to help neighborhood groups purchase and install high efficiency exterior residential lighting replacement fixtures and controls. The guide may be of interest to groups who wish to improve the reliability and affordability of exterior lighting in their neighborhoods.

By installing high efficiency replacement lighting with controls, exterior lights can be left on at night at minimal operating costs. The controls and long-life lamps assure that the lights will be lit more reliably than they would otherwise be with conventional fixtures. This should help ensure a more even distribution of light and better visibility.

This guide provides general information about high efficiency porch lighting conversion options as well as specifications and installation price quotations for selected fixtures and controls and for user-supplied fixtures. Most of the fixture types referenced in the guide use *compact fluorescent lamps* (CFLs) that will last ten times longer and use 70% less energy than standard incandescent lamps and can save over \$23 per year in electricity costs. CFLs package high-quality, high-efficiency fluorescent lighting technology in small lamps, only slightly larger than traditional incandescent bulbs.

This guide was developed in response to neighborhood concerns about lighting in residential areas. Although there are a variety of responses to this issue, one response that is appropriate in most areas, and that can be directly implemented by neighborhood groups is improved exterior lighting.

HOW TO USE THIS GUIDE

Neighborhood groups may use this guide to help them select high efficiency exterior lighting fixtures and controls. In addition, the guide may be used to contract with an electrical contractor to install replacement fixtures at group rate prices. **For more information or additional assistance, please call the City of Berkeley Energy Office at 644-6170 or Neighborhood Services office at 644-6696.**

Why Upgrade Exterior Lighting?

Improve visibility -- uniform, low-level lighting improves pedestrian visibility.

Lights go on when needed -- controls ensures that lights are consistently on at night. Photocells turn lights on at dusk and off at dawn.

Fewer burn outs -- fluorescent lights last ten times longer than regular lights.

Lower electric bills -- conversions are cheaper than electricity expenses for regular lighting.

This guide may be used to:

- assist residents to select appropriate screw-base-type fluorescent lamps to replace incandescent bulbs;
- assist residents to select replacement high efficiency exterior lighting fixtures and controls;
- assist residents to arrange for group purchase installation of high efficiency fixtures and controls.

EXTERIOR LIGHTING BASICS

Visibility

The keys to good visibility are the uniformity of the lighting and the direction of the light source. The intensity, or level of light, is often less important than providing an even level of light from many directions. For these reasons, good exterior building lighting can often do more for pedestrian visibility and confidence than much more powerful street lights. Although street lights are much brighter, they tend to cast shadows from tree branches that create pockets of bright spots and shadows which can inhibit visibility. The experience can be similar to walking into a dark movie theater from a bright lobby. On the other hand, the light from a series of homes with good porch lighting and well trimmed shrubs can provide good pedestrian visibility.

Trimming shrubs and trees can have other benefits as well. Overgrown or extremely large trees or shrubs can hide burglary activity, especially around your home's entry points. For security sake, have them trimmed or moved. Also trim all tree limbs. The way they hug your home may be artful, but burglars don't see them as art -- they view them as ladders.

What is a Compact Fluorescent?

A compact fluorescent lamp (CFL) is a smaller, more compact version of the four foot fluorescent lamps common in most offices.

A CFL consists of a ballast and a phosphor tube which emits light very efficiently. Some models come as single piece ballasts and tubes while others are available in components where the ballasts can be reused when the tubes are depleted.

How Well Do They Work?

Unlike the harsh blue color many people associate with fluorescent lamps, most CFLs now are warm white, similar to incandescent lamps.

Some CFLs are available with no flicker start and operation (electronic ballasts).

CFL ballasts last 50,000 to 75,000 hours and the tubes last about 9,000 hours. A normal incandescent bulb lasts about 900 hours.

Aesthetics

Lighting design is a complex art that can have an enormous impact on the character of the area being lit. Some of the considerations in choosing a fixture include the size and shape of the area that will be lit, the impact of direct light (glare) on the viewer, the impact of stray light on neighboring properties and the appearance of the fixture itself. An enormous variety of fixtures are available to suit particular needs. The most common type of fixture is the globe lamp that casts light equally in nearly all directions. There are a variety of fixtures that shield and redirect light. Typically, these fixtures will minimize glare by shielding light at eye-level and redirecting it in other directions (down, up and/or sideways). Some fixtures provide indirect lighting that is reflected off the wall that the fixture is mounted on. Flood lamps focus light intensely in one direction. For this reason, in the wrong conditions, floodlights can cause glare and can disturb neighbors. It is advisable to visit a lighting showroom or look through lighting catalogues before selecting a fixture.

Efficiency

Because of the long hours of use, the electricity cost of operating an exterior light fixture can be significant. High-efficiency fixtures, such as CFLs, can reduce such costs dramatically. The amount of light output per unit of electric input varies widely among fixtures and lamp types. For example, a typical 60 watt lamp burning 12 hours per day will consume \$32 of electricity each year. In contrast, a CFL can deliver the same light output for only \$9 per year. In general, incandescent lamps are the least efficient lamps available. Halogen lamps are more efficient and are often useful as replacements for incandescent flood or spot lights. CFLs are even more efficient and are very good alternatives for most incandescents. Metal halide and high pressure sodium lamps, often used for street lighting and parking lots, are even more efficient but are generally not available for low-intensity uses such as residential lighting. In general, CFLs are recommended for most private residential applications. Many new fixtures are available with CFLs. In addition to the efficiency of the light source, the design and placement of the fixture also affects the efficiency of light output. For example, many good fixtures come equipped with reflective surfaces and lenses that direct the light where it is needed.

Conversions Cut Electricity Bills

A regular 60 watt incandescent lamp burning 12 hours per day will use about **\$32** of electricity per year, compared to only **\$9** for a compact fluorescent.

Fluorescents save \$23 per year.

Fluorescent fixtures and modular screw-in CFLs allow reuse of the most expensive part of the lamp, the ballast. Ballasts will last more than 10 years, **saving \$230 over the lifetime of the unit.**

The lamps themselves last ten times longer than regular incandescent bulbs (over two years burning 12 hours per day). **You will need 10 incandescent bulbs to outlast one fluorescent lamp.**

Single piece screw-in compact fluorescents will also save about \$23 in electricity each year. Since the ballasts cannot be reused however, the life of the lamp is limited. These single-piece lamps are still more economical than an incandescent.

MAKING CHOICES

Selecting and Installing a Screw-in Compact Fluorescent

The simplest way of reducing electricity costs and increasing the reliability of exterior lighting is to replace the existing incandescent bulb with a screw-in CFL. This do-it-yourself option does have limitations. It may not work for smaller fixtures or where lamps are exposed to moisture. Furthermore, in the long-run, a single piece screw-in CFL is more expensive than a dedicated the CFL fixture or modular screw-in CFL in which the ballast can be reused. And unless automatic controls are installed separately, the lamps must be switched manually.

Nevertheless, screw-in CFLs, particularly modular CFLs, are a cost-effective alternative to incandescent lamps in most applications. A screw-in CFL consists of a common screw base, a ballast and a tube lamp. Some screw-in CFLs also include a globe or cover over the tube lamp.

CFLs can be used to replace incandescents in many applications, including inside a home. The longer the hours of use, the greater the savings. As a general rule of thumb, CFLs will pay for themselves in any fixture that is used more than three to four hours per day. CFLs are available with reflectors to replace spot lights and flood lights (recessed lights in kitchens, for example).

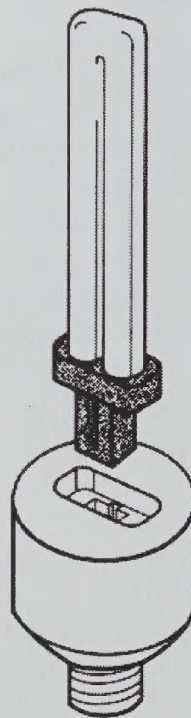
Light Output: CFLs are available from 5 to 27 watts. Light output compared to an incandescent is described below:

CFL	Incandescent
7 watts	40 watts
13 watts	60 watts
27 watts	100 watts

Size: Screw-in CFLs are larger than incandescents. The area above the base is wider and the tubes are longer. Screw-in CFLs will not fit in short fixtures or fixtures with a narrow base. Most CFLs range from 7.5 to 8.5 inches in length, although the more expensive models are available as short as 5.5 inches in length. It's a good idea to measure the fixture before selecting a screw-in CFL.

Lifetime and Replacements: CFL lamps will last about 9,000 hours, or about ten times longer than an incandescent lamp. After 9,000 hours of burn time, the lamps will grow dim and should be replaced. *Single-piece* CFLs need to be replaced in their entirety. The base (including the

Types of CFLs



CFLs are available as *screw-in* replacements lamps as well as *dedicated fluorescent fixtures* which will only use CFL lamps.

A CFL consists of a ballast and a phosphor tube. In the *modular screw-in CFL* illustrated here, the ballast, which is in the base of the lamp, may be reused. The less expensive tube part of the lamp can be replaced after 9,000 hours of use. The ballast will last 50,000 hours or more.

Modular CFLs and dedicated CFL fixtures both have reusable ballasts and in the long-run are cheaper than *single piece screw-in* CFLs.

ballast) of a *modular* CFL can be reused; lamp replacements are about \$4.50 to \$9.00 (varies by type).

Limitations: CFLs should not be exposed directly to the weather. They may be used in an enclosed fixture. The CFLs currently available cannot be used with dimmer switches. CFLs do not fit in all fixtures.

Cost: Screw-in CFL's range in price from about \$6.00 to about \$30.00. Generally, unitary, magnetically ballasted CFLs are available for \$15 or less. Modular CFLs and electronically ballasted (no flicker) CFLs are at the higher end of the price range.

Savings: A typical unitary 13 watt CFL will save about \$46 in electricity costs and up to \$4.50 in lamp replacement costs over its 9,000 hour lifetime. A typical modular 13 watt CFL will save about \$230 in electricity costs over its 50,000 hour lifetime (lamp replacement costs are about even).

Availability: Screw-in CFLs are available at hardware stores, home improvement centers, electrical supply stores and lighting showrooms. They are also available through mail order catalogues. The Berkeley Energy Office has reports on available models and suggested retail prices.

Retrofitting an Existing Fixture

Many existing fixtures can be retrofitted to *dedicated CFL* fixtures. Dedicated CFLs are similar to modular CFLs in that the lamp can be replaced without replacing the ballast, saving money in the long run. In addition, when fixtures are converted to dedicated CFLs, automatic photocontrols can be added. Conversions should be installed by qualified personnel.

Selecting a Replacement Fixture

For older or damaged fixtures, or other fixtures that cannot accept a CFL retrofit, it may be worthwhile to consider fixture replacement. Most new fixtures are available with dedicated CFLs, although this is often a special order feature.

As previously mentioned, there is an enormous variety of fixtures available for different applications. If possible, it is recommended that consumers either visit a retail lighting showroom to look at fixture types or visit a commercial lighting supply distributor to look at catalogues of available fixtures. Groups that plan to purchase several fixtures on behalf of a neighborhood group may be able to negotiate a discounted rate. Several vendors are listed in the phone book under "Lighting Fixtures."

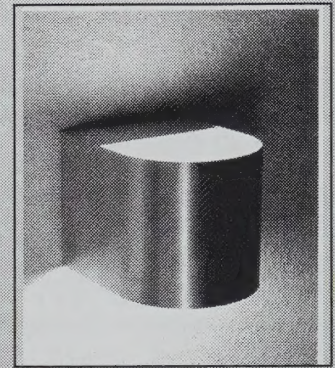
A few basic varieties are offered under the group purchase plan of this guide. The group purchase plan also provides for installation of user-supplied fixtures. If you choose to purchase a fixture yourself, it is recommended that you purchase one with a photosensor. Also, be sure to ask for a CFL model.

Replacements should be installed by qualified personnel.

Fixture Types

The design of a light fixture can have a major effect on the character of the area being lit and the effectiveness of the lighting.

Fixture styles range from the traditional, to craftsman-style, to fixtures with stylized modern architectural features.



Up/down light
Courtesy of Shaper Lighting

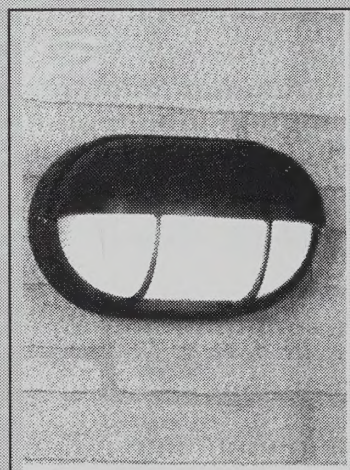
Fixtures also differ in the pattern of light distribution. Some shield light from the viewers' eyes. Others light an area indirectly by casting light up and down but not directly out. Landscape lighting illuminates pathways but maintains a darker, more natural setting above the ground.

The few varieties illustrated here are just a sampling of what is available in the market.



Craftsman fixture
Courtesy of Westerfield

If possible, it is recommended that consumers consult with a designer, architect or lighting sales person before selecting a fixture.



Shielded light
Courtesy of Lightolier



Landscape light
Courtesy of Shaper Lighting

Selecting a Control

Photocontrols are commonly used to turn fixtures on at dusk and off at dawn. Photocontrols should be aimed away from reflective surfaces which might cause the control to confuse the electric light with daylight.

Timers can be used to turn lights off and on at preset times. Timers may be used in conjunction with photocontrols to shut off the light at a specified time in the late evening or early morning. Caution -- many electronic timers are not designed to work with fluorescent fixtures.

Motion sensors that use infrared detection can be installed to turn lights on whenever a person (or large animal) moves near the device. Motion sensors should not be used near sidewalks or dog runs where they are likely to be triggered frequently. For exterior applications, motion sensors should always be installed along with photocontrols or timers.

Controls should be installed by qualified personnel.

GROUP PURCHASE AND INSTALLATION

In order to take advantage of group rate installations and to make the process of obtaining quotations and selecting a contractor easier, the City of Berkeley has obtained bids for the procurement and installation of fixtures and controls. The three contractors with the lowest overall bids have been included in this guide. All bids assume a minimum order of ten fixture retrofits and/or replacements.

Bids are provided for the following items:

- furnishing and installing selected exterior fixtures and controls (see descriptions below);
- furnishing and installing user-supplied CFL fixtures;
- hourly labor rates for additional electrician services, such as replacement of wiring, adding new fixtures, etc.

The fixture replacement prices apply to replacement of existing fixtures, assuming the existing wiring and electrical boxes are in good condition. The fixture retrofit prices assume an existing fixture that is in good condition and capable of accepting a retrofit package. If a retrofit cannot be performed, the contractor will recommend a replacement fixture. Extra charges will apply if any wiring needs to be replaced and/or repaired or any electrical boxes and/or conduit need to be moved or installed. Contractors will obtain approval for such additional expenses prior to proceeding with the work.

Contractors have agreed to provide extra services (additional wiring, wiring repairs, etc.) at the labor rate provided in the quote lists. The rate applies to time spent at the job site only, not travel time or time to purchase materials.

All contractors are licensed, bonded and insured.

Price Quotations

The three contractors with the lowest overall bids are identified below. Quotes apply to contracts for a minimum of ten fixture installations/retrofits. Prices for smaller orders may be negotiated with the contractors.

Andrea Denver Associates
2243 Browning St, Berkeley, 94702
Ph. 841-4552 Fax 486-1766, Lic. #574305

White Electric Co.
PO Box 11276, Berkeley 94712
Ph. 845-8534 Fax 845-4467, Lic. # 15333

Ray's Electric
606 E.11th Street, Oakland 94606
Ph. 251-6175 Fax 451-2713, Lic. # 199325 and 682725

Contractor quotations to furnish and install fixtures and controls specified in this guide are presented below. All fixtures (except user-supplied) to include photo-controls. Prices are valid through April 8, 1997.

Description	Contractor Installation Quotations (Minimum order of 10 fixtures)		
	Andrea Denver	Ray's Electric	White Electric
Retrofit existing fixture (price varies by fixture type)	\$73.88 to \$79.84	\$69.00 to \$74.00	\$62.00 to \$67.00
Wall mount globe	\$65.02	\$98.00	\$58.00
Wall mount jar	\$61.04	\$94.00	\$61.00
Wall mount Slimway	\$78.79	\$97.00	\$71.00
Ceiling mount globe	\$61.37	\$83.00	\$69.00
Ceiling mount jar	\$55.96	\$88.00	\$61.50
Fluorescent flood	\$58.35	\$98.00	\$95.80
High pressure sodium flood	\$115.43	\$166.00	\$137.00
Motion detector	\$69.82	\$107.00	\$73.00
User supplied fixture	\$39.60	\$56.00	\$28.00
Hourly rate for extra electrician work	\$52.80	\$64.00	\$48.00

Choosing a New Energy Efficient Exterior Light Fixture

Three varieties of lighting service options are available under group purchase:

1. Installation of CFL retrofits and controls for existing fixtures;
2. Procurement and installation of selected area light and floodlight replacement fixtures with controls;
3. Installation of owner-supplied CFL fixtures.

Options one and two include all hardware. All varieties feature high efficiency CFL or high pressure sodium lamps and photocontrols which turn the fixtures on at dusk and off at dawn.

Option three assumes that the owner will purchase a CFL fixture of her/his choice and the contractor is responsible for installation. Owners are encouraged to purchase fixtures with photocontrols.

Retrofits

A retrofit replaces the existing incandescent socket with a fluorescent socket, ballast and a photocontrol. Retrofits differ from screw-in fluorescent lamps in that the retrofit will fit in more types of fixtures and is very economical in the long-term since the lamp-life may be replaced without changing the ballast.

In most cases, if the existing fixture is in good condition, it can be retrofitted. Some fixtures cannot be retrofitted; the contractor can tell for certain which fixture can be retrofitted.

Retrofits use one 13 watt lamp and a ballast for a combined wattage of 17 watts. This provides as much light as one 60 watt incandescent fixture and saves more than 70% in electrical operating costs.

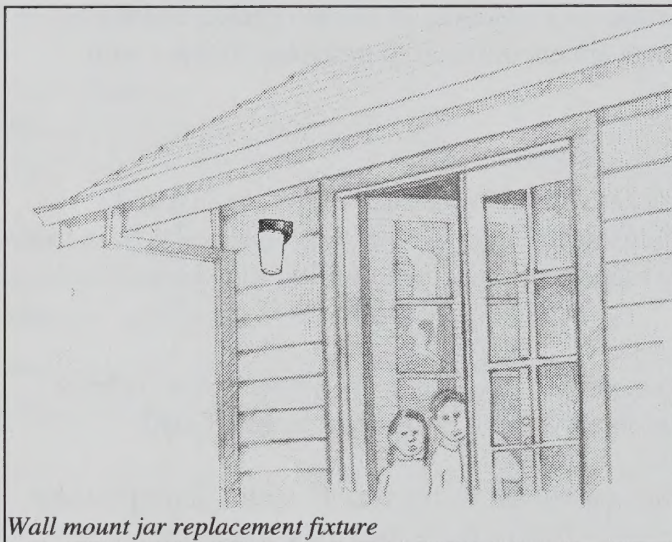
The contractor quotations are for furnishing and installing retrofit packages by Westerfield (models 100-PL13, 100-PL13Q, 140-PL13 and 140-PL13Q, depending upon the specific situation), and photocontrols by Intermatic (model K4221C, swivel type).

Area Light Replacement Fixtures

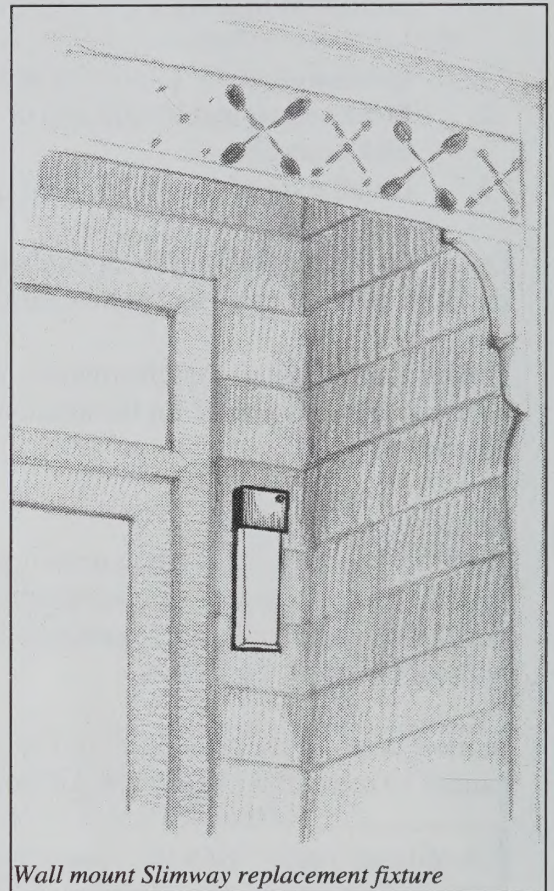
Area light fixtures light broadly in many directions. Common applications include porches, sideyards and garage entrances. New fixtures should be installed in the same location as old fixtures, using the same wiring. Five varieties of area light fixtures are included in the group purchase program. All fixtures are equipped with photocontrols. Note that the group purchase plan also provides quotations for installation (labor only) of user-supplied fixtures that are not available through this guide.

If the existing fixture is attached to a vertical wall, a "wall mount" replacement fixture is required. If the existing fixture is attached to a ceiling or is suspended from a ceiling, a "ceiling mount" type fixture is required.

Wall mounted fixtures included in the group purchase program come in three varieties -- an 8" long jar, a 6" globe and a slim rectangular unit (Slimway). Many people find the globe more attractive, but it uses a quad lamp that is twice as expensive to replace as the standard lamp (about \$9.00 versus \$4.50). The globe and the jar are rated for damp locations but should not be exposed directly to the rain. The Slimway is wet-rated and can be directly exposed to the weather.



Wall mount jar replacement fixture



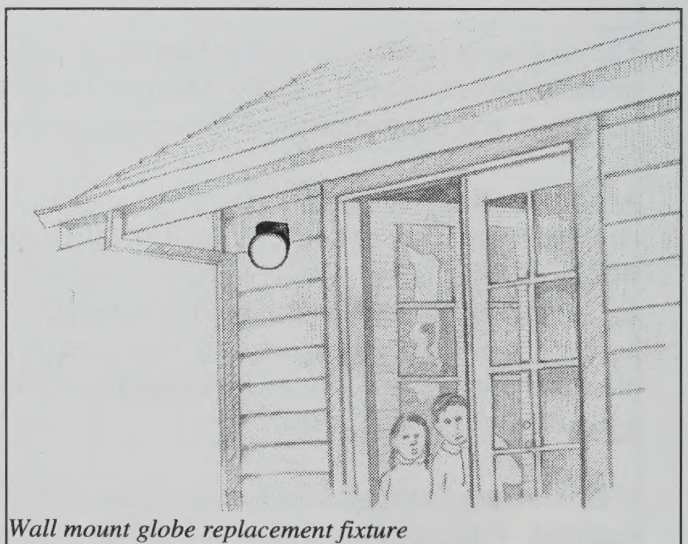
Wall mount Slimway replacement fixture

The jar and globe fixtures are also available in ceiling mount models.

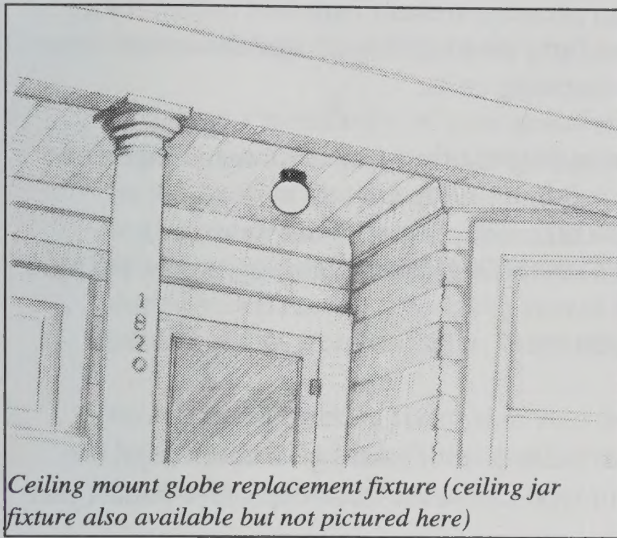
All fixtures come equipped with photocontrols.

The contractor quotations are for furnishing and installing the fixture models specified below:

- Slimway wall mount: Lightway model SWP13 (wet-rated);
- Wall mount globe: Westerfield model 1700-PL13Q with photocontrol (damp location rated);
- Wall mounted jar: Westerfield model 1700-PL13 with photocontrol (damp location rated);



Wall mount globe replacement fixture



Ceiling mount globe replacement fixture (ceiling jar fixture also available but not pictured here)

- Ceiling mount globe: Lightway model GCMQ13 with photocontrol (damp location rated);
- Ceiling mounted jar: Lightway model GCM13 with photocontrol (damp location rated).

Floodlight Replacement Fixtures

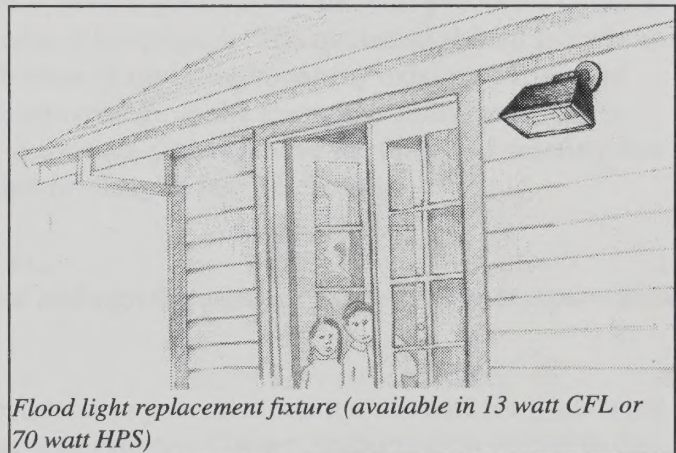
An existing fixture can be replaced with a new energy efficient fluorescent floodlight or with a more powerful high pressure sodium floodlight. Because floodlights cast light in only one direction, they should only be considered for specific applications, such as lighting a sideyard or driveway. Also, when

selecting a floodlight, make sure that the light will not shine into a neighbor's window. Installing floodlights on front porches or at doors used as main entrances is not recommended because of the glare on people entering the residence.

New floodlights can have motion detectors, which will turn the lights on when motion is detected. If the fixture is located near where people or animals may be moving, such as the sidewalk or a dog run, a motion detector should not be used.

Both floodlights in the group purchase plan include photocontrols which turn the lights on at dusk and off at dawn. Both are suitable for wet locations and can be directly exposed to rain.

Compact Fluorescent Floodlight: CFL floodlights use one 13 watt lamp and ballast for a combined wattage of 17 watts. This provides as much light as one 60 watt incandescent floodlight and saves more than 70% in electrical operating costs.



Flood light replacement fixture (available in 13 watt CFL or 70 watt HPS)

High Pressure Sodium (HPS) Floodlight: For larger areas, such as parking lots, the more powerful 70 watt high pressure sodium floodlight may be appropriate. Because this fixture is much brighter, consideration should be given to where it is used because it can cause glare. The color of this lamp is yellowish and is not as good as the fluorescent fixtures for distinguishing colors.

High pressure sodium fixtures use one 50 watt high pressure sodium lamp and ballast for a combined wattage of 62 watts. This provides more light than a 200 watt incandescent floodlamp and saves more than 70% in electrical operating costs.

The contractor quotations are for furnishing and installing the fixture models specified below:

- CFL floodlight: Enertron model 8800BL with photocontrol (wet-rated);
- HPS floodlight: Westerfield model 5800-50W HPS or Lightway model FWM50 with photocontrol (wet-rated);
- Motion detectors: Hubbell model OS120.

Replacement Lamps

Once a CFL lamp does burn out or grows dim (two years or so if burning 12 hours/day), the lamp may be replaced (unlike single-piece screw-in type CFLs, the more expensive ballast part of the lamps do not need to be replaced).

Replacement standard 13-watt lamps currently costs about \$4.50 (retail), about the same as the cost of 10 incandescent bulbs that have the same combined lifetime. The lamps snap into place without any tools. Replacement quad lamps (for globe fixtures) cost about \$9.00. Many local retailers carry replacement lamps; replacements are also available through mail order catalogues.

HOW TO ARRANGE FOR GROUP PURCHASE AND INSTALLATION

Groups interested in participating in the group purchase program should follow the steps below.

1. Designate a member(s) of your association who will be responsible for coordinating the project. Contractors have agreed to provide services under the group rate program under the assumption that the groups will facilitate the projects so that the group can be treated as a single client. The coordinator(s) will be responsible for conducting a survey, obtaining property owner preferences and authorizations, executing a contract with an electrical contractor, scheduling access to the homes where the work is to be done, collecting fees from residents, inspecting the work performed and paying the contractor.
2. Survey porch lighting fixtures in your neighborhood.
Using the attached Neighborhood Survey Form, make a list of the existing exterior fixtures in your neighborhood.
3. Select lighting options for each residence.
Have property owners select the type of fixture or retrofit they would prefer using the Property Owner Preference Form. Complete the Owner Preference section of the Neighborhood Survey Form.
4. Select a contractor and obtain a quote.
If you choose a contractor identified in the guide, they will furnish and install the fixtures at the quoted price. Send the Neighborhood Survey Form to the contractor. The contractor will do a site assessment to review your survey and will produce a Order and Quotation Form with an itemized cost of the project. The quotation should include any anticipated expenses for moving fixtures or replacing/repairing existing wiring and fixtures. Not all such costs can be anticipated. In the event that additional work is required that is not included in the quotation, you will have the option of deleting that fixture from the contract and will not be charged for that fixture.
5. Obtain property owner authorization.
Have each property owner complete and sign the attached Property Owner Authorization Form.
6. Contract for the work. Ask the contractor to provide a written contract for the project. Sign the contract. Send the contract and Property Owner Authorization Forms to the Contractor. Keep an original signature copy of the contract and a copy of the Property Owner Authorization Forms for your records.
7. Sign off for work completed and pay the contractor.
Contractors included in this guide have submitted bids based on payment within 30 days of work completed. The neighborhood representative who signed the contract is responsible for promptly inspecting to see that all work has been done and processing payment.

PROPERTY OWNER PREFERENCE FORM

Name: _____ Address: _____
Phone: _____

The _____ (name of neighborhood organization) is organizing an exterior lighting conversion project. The objective of this project is to reduce energy use for exterior lights left on to improve pedestrian visibility. The attached survey recommends fixtures that could be replaced or retrofitted at your property. Using the description of options in the guide, identify the type of conversion you would like on each fixture. Please note that your selection will be subject to feasibility as determined by the electrical contractor.

Fixture 1 Location: _____
Type (circle one): Wall, Ceiling, other _____ (specify)

Style (check one):

- ☐ Retrofit (if you want to keep your existing fixture)
- ☐ Area light globe
- ☐ Area light jar
- ☐ Slimway
- ☐ Fluorescent (CFL) floodlight
- ☐ _____ with motion sensor
- ☐ High pressure sodium (HPS) floodlight
- ☐ _____ with motion sensor
- ☐ User-supplied fixture

Fixture 2 Location: _____
Type (circle one): Wall, Ceiling, other _____ (specify)

Style (circle one):

- ☐ Retrofit (if you want to keep your existing fixture)
- ☐ Area light globe
- ☐ Area light jar
- ☐ Slimway
- ☐ Fluorescent (CFL) floodlight
- ☐ _____ with motion sensor
- ☐ High pressure sodium (HPS) floodlight
- ☐ _____ with motion sensor
- ☐ User-supplied fixture

Please return this form by _____ (date) to:

Name: _____ Address: _____

Phone: _____

PROPERTY OWNER AUTHORIZATION FORM

The _____ (name of neighborhood organization) is organizing an exterior lighting conversion project. The objective of this project is to reduce energy use for exterior lights left on at night to improve pedestrian visibility.

The attached order form identifies fixtures to be retrofitted and/or replaced at your property, any additional electrical work required for the conversion and the cost of the proposed work. Your consent is needed to perform this work. If you agree, please sign and date the form below.

I authorize _____ (name of electrical contractor) to perform the work at my property specified on the attached order form and agree to pay for such services as indicated on the attached Order and Quote Form.

Signature

Date

Name (please print)

Property address

Please return this form by _____ (date) to:

Name: _____ Address: _____

Phone: _____

[illegible]

CONTRACT TERMS CHECKLIST

Your contractor will draft a contract for the project. A few key items to look for in the contract are noted below.

1. The contractor shall furnish and install the fixtures at the prices quoted in the guide.
2. The fixtures specified in the contract are the same as the fixtures specified in the guide, or are substitutes acceptable to the property owners.
3. Any additional labor expenses for special services (e.g., repair of wiring, conduit, etc.) shall be charged at the rate in the guide and such charges shall apply only to on-site time; i.e., not for travel time.
4. Any anticipated additional expenses for special services shall be noted and included in the quotation.
5. Any unanticipated additional expenses must have prior approval by the home owner. (If the contractor starts work on a particular fixture and finds bad wiring, etc., which will add to the cost of the project, the contractor will immediately stop work on that fixture and quote the extra charge to the homeowner, who will have the option of refusing all work on the fixture and will not be charged for any work on the fixture.)
6. The contractor will complete the work within 45 calendar days of executing the contract.
7. The work will be guaranteed free of defects in materials and workmanship for one year.
8. Work sites will be cleaned and left as before.
9. Payment in full is due within 30 days of completion of the project.

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